
Quantifying the GHG Benefits of Energy Efficiency; Massachusetts Case Study

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Massachusetts Department of Environmental Protection

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Project Goals

- Help pave the way for integrating energy efficiency (EE) and renewable energy (RE) into air quality planning through real-world examples
- Road-test EPA's Roadmap for Incorporating EE/RE Policies and Programs into State and Tribal Implementation Plans
 - Inform future efforts to use the Roadmap
 - Identify issues and work with EPA to improve the Roadmap
- Other participants: EPA, MA, MD, NY, Northeast States for Coordinated Air Use Management (NESCAUM), Regulatory Assistance Project (RAP)



Massachusetts' Goals

- Massachusetts is testing the baseline pathway for our EE programs:
 - Demonstrate benefit of significant & ongoing EE programs
 - Apply recent experience working with ISO-NE and RGGI states on load and EE forecasting
- Retain Massachusetts EE programs, ranked first in nation for 2011 and 2012



- No imminent SIP, but strong interest in promoting EE programs and encouraging other states to realize EE savings and emissions reductions

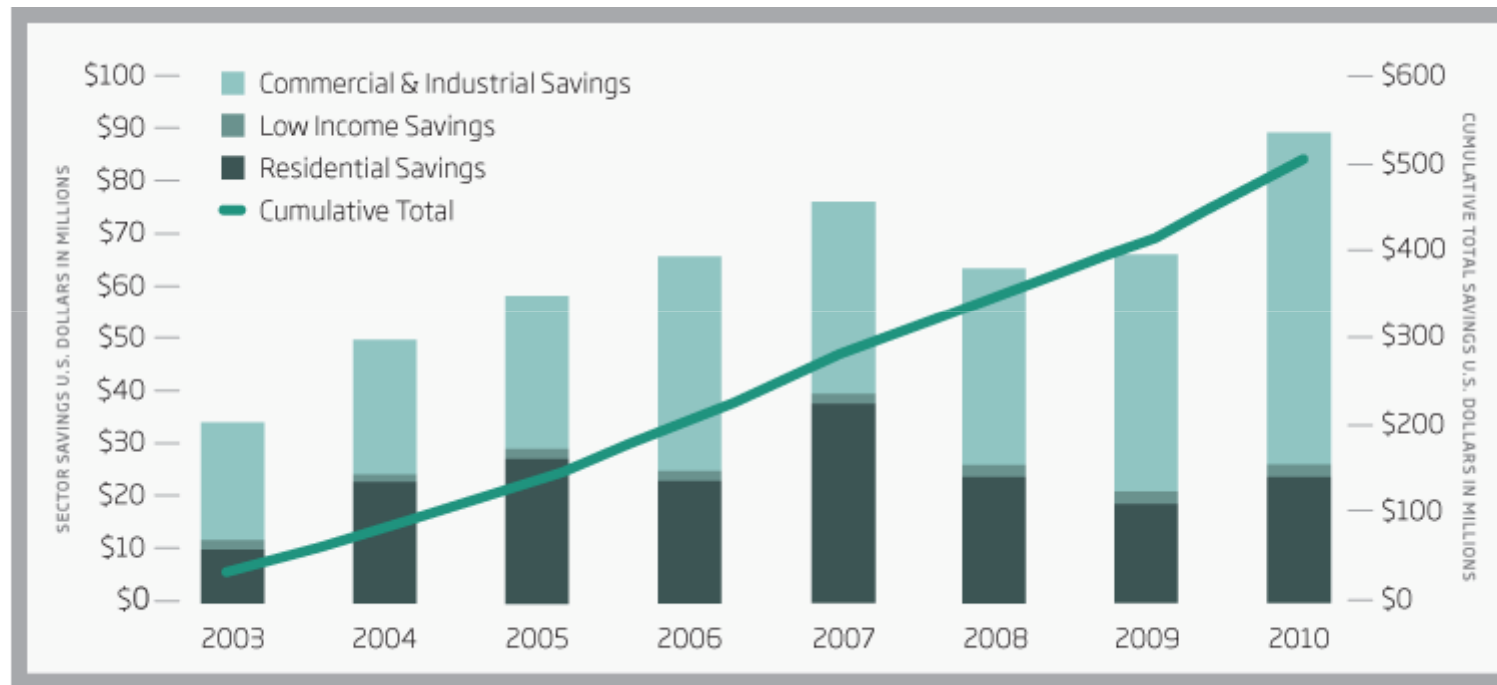


Massachusetts EE Policy Drivers

- Massachusetts Global Warming Act (2008) requires GHG reductions of 25% by 2020 and 80% by 2050 (compared to 1990 baseline)
- Green Communities Act (2008) requires “acquisition of all available energy efficiency and demand reduction resources that are cost effective or less expensive than supply” and targets RGGI auction proceeds for EE
- Massachusetts Clean Energy and Climate Plan for 2020 relies on EE for largest segment of reductions (nearly one third of reductions)



Sustained EE Investment in MA



SOURCE: DOER Energy Data

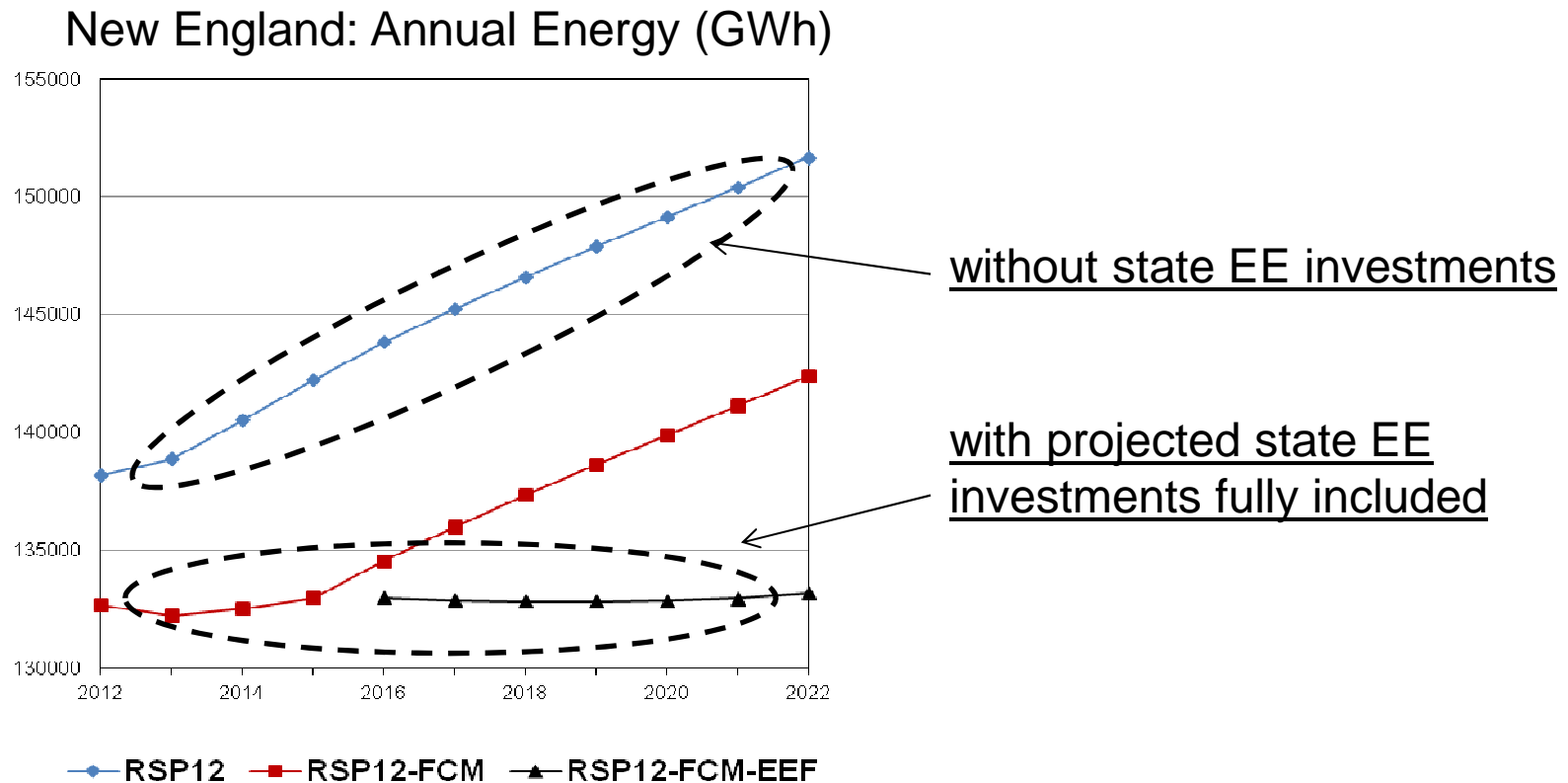


ISO-NE EE Forecast Methodology

- State Program Administrators (PAs) analyze measures, project reductions. Projections robust because:
 - PUC oversight (need cost data)
 - EE reliability key for Forward Capacity Market
- Costs and reductions develop representative \$/MWh production costs
- Out-year reductions estimated using projected program spending and production costs
 - discounted for uncertainty in spending
 - discounted for measure reliability



ISO-NE Load Forecast



Source: ISO-NE Final 2013 EE Forecast, 3/21/13. The red line includes only EE reflected in the three-year-ahead forward capacity market.



RGGI Experience

- 2012 program review required load projections for modeling
- Initial runs: States adjusted ISO-NE forecasts for EE
- Final model runs: ISO-NE revised forecasting to include EE over 10 years, states used ISO-NE-provided forecast
- Lesson learned: ISOs, states, utility regulators, and utilities can agree on EE impacts
- Benefit: Revised cap “locks in” EE benefits included in modeling = jobs and consumer savings!!!



Consistency is Key for SIPs

- Much work and progress on EM&V standardization
 - Not just New England (NY, CA, and others)
 - DOE, NREL, NEEP, etc.
- Conversion to emissions impacts remains a challenge
 - Lots of options for emission factors (marginal vs. average, etc.)
 - Modeling possible, but resource intensive
 - Some issues differ by pollutant (e.g., high electric demand days during ozone season)
- Consistency is key for SIPs, 111(d)
 - EPA must ensure “ton is a ton”
 - Roadmap project is a good first step
- Also an issue within states (e.g., MassDEP, DOER, DPU)



EPA Roadmap: MA Perspective

- Very encouraged by EPA support for inclusion of EE in SIPs
 - EE very cost effective compared to traditional controls (overall costs are often negative)
 - Opportunities for additional reductions from traditional controls may decrease (or not be available for GHGs)
- Concerned about need to recognize that EE investments don't target individual power plants
 - Reductions in power plant emissions are real, but
 - Policies target power sector as a whole, not individual plants
 - “Traditional” treatment of mobile and area sources may be a useful model



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